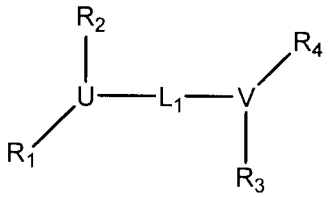
AMENDMENTS TO THE CLAIMS

Claim 1 (cancelled)

Claim 2 (original): A pharmaceutical composition useful for preventing or treating anthrax infections by inhibiting Anthrax Lethal Factor activity comprising a compound of the formula:



wherein U and V are, independently, C, N, or $C(CH_3)$, L1 is a linker and R1, R2, R3 and R4 are each independently selected substituent groups, as follows: R1 is $Z(CHR5)_nY$ where n is 0 to 4,

Z is a bond, S, CO, O, SO, SO_2, NH, NR11, SO_2NR11, $NR11SO_2$, 1,2-phenylene, 1,3-phenylene, 1,4-phenylene, 1,2-cyclohexylidene;

Y is a group known to bind to zinc, including CONR110H, COOH, SH, ArSH, $NHCOCH_2SH$, 2-hydroxybenzoate (linked at the 3,4,5, or 6-position), 2-hydroxypyridinecarboxylate (linked at the 3,4,5, or 6-position, with the ring nitrogen at any unsubstituted position), $CF_2P{=}O(OH)_2$, $C(CH_3){=}OCH_2COOH$, $C(CH_2OH){=}NOCH_2COOH$, $NHCO(CHR11)_mSH$ (where m=1 to 4), $PO(OH)_2$, PO(R11)OH, $SO_2NR11OH$, or NH(OH)COR11, or is derivatized to form a prodrug that is capable of undergoing conversion to a zinc-binding moiety,

R5 and R11 are, independently, H, CH_3, amino, hydroxy, alkoxy, alkylthio, alkyl (C2-C10), branched alkyl (C3-C10), alkylthio (C1-C7), alkylthioalkyl (C2-C8), arylthio, alkylamino(C1-C7), amino, arylamino, aryl, heteroaryl, arylalkyl, heterarylalkyl, arylalkenyl, heterarylalkenyl, arylalkynyl, or heterarylalkynyl,

and where R1 can be further substituted with one or more of the following: NH_2, OH, halogen, alkyl, $CONH_2$, CONHOH, $C(NH)NH_2$, C(NH)NHOH, $NHC(NH)NH_2$, CN,

NO_2, NR6R7 where R6 and R7 are H or alkyl and optionally form a ring, or R5 can form a ring with R2 or with R11;

R2 is H, isobutyl, n-butyl, pentyl, methyl, alkyl (C1-C10), branched alkyl (C3-C10), cycloalkyl, cycloalkylmethyl (C3-C9 cycle), $Ar(CH_2)_n$ (where n is 0 to 4, Ar is phenyl, aryl, heteroaryl), phenethyl, arylalkenyl, heterarylalkenyl, arylalkynyl, heterarylalkynyl, alkenyl (C2-C8), alkynyl (C2-C8), pentafluorophenoxyethyl, pentafluorophenylmethyl, cycloalkenyl (C4-C10), alkylthio, arylthio, alkylamino, arylamino, aryl, dichlorophenyl, or R2 can form a ring with R5, R11, L1, or R3, and R2, R5 and R11 can be substituted with one or more of the following: NH_2, OH, halogen, alkyl, CF_3, CF_3O, CF_3S, alkoxy, alkylthio, SO_2alkyl (C1-C4), $CONH_2$, CONHOH, $C(NH)NH_2$, CN, NO_2, C(NH)NHOH, $NHC(NH)NH_2$, or NR6R7 where R6 and R7 are H or alkyl and can form a ring;

R3 is H, phenethyl, alkyl (C1-C10), branched alkyl (C1-C10), aryl, phenyl substituted with aryl or heteroaryl at the 2-, 3-, or 4-positions, benzyloxy, pyrrolyl substituted with 1-2 aryl groups, 2-aryl-1,3,4 thiadiazolyl, heteroaryl (including thiophenyl), -L2Ar where Ar includes 1-naphthyl, 2-naphthyl, 4-phenylphenyl, 5-(2-thienyl)-2-thienyl, 4-(3'-methoxyphenyl)phenyl, 4-(4'-methoxyphenyl)phenyl, 3-indolyl, phenyl, t-butyl, indolyl 3-phenylphenyl, indolyl, 2,3-dimethyl-5-indolyl, benzothiophenyl, 4-(1,2,3-thiadiazol-4-yl)phenyl, 4-(2-thienyl)phenyl, 5-(2-pyridyl)-2-thienyl, 1-(2-napthyl)vinylaminoalkyl, N-hydroxybenzamidin-4-yl, 2-methylcarbazol-3-yl, 2-ethylcarbazol-3-yl, aryl or heteroaryl and L2 is a linker chosen from the following, in both orientations: bond, CH_2, $(CH_2)_2$, CH_2NHCH_2, $CH_2CH_2CONHCH_2$, $CH_2CH_2CONHCH_2CH_2$, 1,1 vinylidene, 1,2-vinylidene, CO, $CH_2CH_2NHCH_2$, $CH_2CH_2CH_2NHCH_2$, $CH_2NHCH_2CH_2$, $(CH_2)_q$ where q=3 to 7, $(CHR9)_r$ where r=1 to 7 and R9 is independently H, alkyl (C1-C10), branched alkyl (C3-C10), cycloalkyl (C3-C10), cycloalkylalkyl (C4-C14), alkyl thio, amino, alkyl amino, dialkylamino, (CHR9)sX(CHR9)t where s+t=0 to 8, X is O, S, CO, SO, SO_2, NH, CONH, NHCO, SO_2NH, $NHSO_2$ or NR9 and R9 is independently H, alkyl (C1-C10), branched alkyl (C3-C10), cycloalkyl (C3-C10), cycloalkylalkyl (C4-C14), acyl, alkyl thio, amino, alkyl amino,

or dialkylamino, and R9 also includes N-linked heterocycles such as piperidine, pyrroline, (1,2,3,4-)tetahydrobetacarbolin-2-yl, R15 is H, alkyl (C1-C4), branched alkyl (C3-C5), or cycloalkyl(C3-C5), carbon-carbon single bonds in R8 can optionally be substituted with double or triple bonds, and where R3 can form a ring with R2, L1, or R4, or R3, R9 and R15 are further substituted with one or more of the following NH_2, OH, halogen, $N(CH_3)_2$, alkyl, CF_3, CF_3O, CF_3S, alkoxy, alkylthio, $CONH_2$, CONHOH, $C(H)NH_2$, CN, NO_2, C(NH)NHOH, $NHC(NH)NH_2$, aryloxy, trifluoromethylphenyloxy, carboxyalkyl (C2-C8), (Carboxyphenyl)methylthio, carboxyalkylthio (C2-C8), carboxyphenyl, NR6R7 where R6 and R7 are H or alkyl or can form a ring;

R4 is H, alkyl (C1-C10), branched alkyl (C1-C10), arylalkyl, heteroarylalkyl, CONR10R16 where R10 is H, methyl, alkyl (C2-C10), branched alkyl (C3-C10), benzyl, phenethyl, arylalkyl, heteroarylalkyl, alkanoyl (C2-C8), branched alkanoyl, aroyl (C6-C12), heteroaroyl (C2-C10), isopropyl, CONR16R12; and where R12 and R16 are, independently, H, methyl, alkyl, benzyl, 2-phenylethyl, 2-indanyl, 2-morpholinylethyl, (2,6)-dimethoxylbenzyl, dimethylaminoethyl, (2-pyridyl)methyl, 2-(2-pyridyl)ethyl, 4-carboxybenzyl, 1-phenylethyl, $CH(CONH_2)CH_2C6H_5$, $CH(CONH_2)CH_2CH(CH_3)_2$, $CH(CONH_2)CH(CH_3)CH_2CH_3$, $CH(CONH_2)CHCH_3$ $CH(CH_2OCH_3)CH_2C6H_5$, $CH(CONHCH_2CH_2OCH_3)CH_2$cyclohexyl, aryl, arylalkyl, heteroaryl, heteroarylalkyl, aminoalkyl, hydroxyalkyl, (trifluoromethylphenoxy)phenyl. NR16R12 can optionally form an N-linked monocyclic or bicyclic heterocyclic ring, including but not limited to 1,2-dihydroisoindole, octahydroisoindole, morpholine, piperidine, piperazine, N-alkyl piperazine (C1-C4), homopiperazine, 3-pyrroline, pyrrolidine, tetrahydroisoquinoline, octahydropyrrolo[3,4-C]pyrrole, L-proline, L-proline dimethylamide, D-proline, D-proline dimethylamide, and thiazolidine, or

R4 can form a ring with L1 or R3, and R4, R6, R7, R10, R11, R12 and R16 can be further substituted, independently, with 1 to 3 of the following substitutents: NH_2, OH, F, Cl, Br, methyl, alkyl, aryl, cycloalkyl (C3-C6), heterocycloalkyl, heteroaryl, CF_3, CF_3O, CF_3S, CF_3, aryloxy, trifluoromethylphenoxy, alkoxy, alkylthio, $CONH_2$, CN, NO_2,

CONHOH, $C(NH)NH_2$, C(NH)NHOH, $NHC(NH)NH_2$, NR6R7 where R6 and R7 are H or alkyl, or can form a ring; and

L1 is a linker including the following, in either orientation: single bond, double bond, CONH, NHCO, $N(CH_3)CO$, $CON(CH_3)$, CH_2NH, $NHCH_2$, CH=CH, $C(NH_{12})=N$, $N=C(NH_2)$, arylene (linked 1,2-; 1,3-; or 1,4), heteroarylene (linked 1,2-; 1,3-; or 1,4), ethynyl, CH=CF, CF=CH, CF=CF, CH_2CH_2, $C(CH_3)=CH$, $CH=C(CH_2)$, SO_2NH, SO_22, $COCH_2$, CH_2CO, $CNOHCH_2$, CH_2CNOH, $C(CF_3)=CH$, $CH=C(CF_3)$, SO_2CH_2, CH_2SO_2, $SOCH_2$, CH_2SO, CH_2CHOH, $CHOHCH_2$, lower cycloalkyl (C3-C6), or CHOHCHOH, or where L1 can be substituted with one or more of the following: NH_2, OH, halogen, alkyl, CF_3, CF_3O, CF_3S, alkoxy, alkylthio, $CONH_2$, CONHOH, $C(NH)NH_2$, C(NH)NHOH, $NHC(NH)NH_2$, NR6R7 where R6 and R7 are H or alkyl and optionally form a ring, together with a pharmaceutically acceptable carrier.

CONHOH, $C(NH)NH_2$, C(NH)NHOH, $NHC(NH)NH_2$, NR6R7 where R6 and R7 are H or alkyl, or can form a ring; and

L1 is a linker including the following, in either orientation: single bond, double bond, CONH, NHCO, $N(CH_3)CO$, $CON(CH_3)$, CH_2NH, $NHCH_2$, CH=CH, $C(NH_{12})=N$, $N=C(NH_2)$, arylene (linked 1,2-; 1,3-; or 1,4), heteroarylene (linked 1,2-; 1,3-; or 1,4), ethynyl, CH=CF, CF=CH, CF=CF, CH_2CH_2, $C(CH_3)=CH$, $CH=C(CH_2)$, SO_2NH, SO_22, $COCH_2$, CH_2CO, $CNOHCH_2$, CH_2CNOH, $C(CF_3)=CH$, $CH=C(CF_3)$, SO_2CH_2, CH_2SO_2, $SOCH_2$, CH_2SO, CH_2CHOH, $CHOHCH_2$, lower cycloalkyl (C3-C6), or CHOHCHOH, or where L1 can be substituted with one or more of the following: NH_2, OH, halogen, alkyl, CF_3, CF_3O, CF_3S, alkoxy, alkylthio, $CONH_2$, CONHOH, $C(NH)NH_2$, C(NH)NHOH, $NHC(NH)NH_2$, NR6R7 where R6 and R7 are H or alkyl and optionally form a ring, together with a pharmaceutically acceptable carrier.